

## (57) Abstract

The present invention concerns a process and an apparatus for thermal conversion of biomass and organic wastes. According to the invention the feedstock is fed into a fluidized-bed reactor (1-3), wherein the feed is converted at an elevated temperature under the influence of particulate matter kept in a fluidized state by a fluidizing gas, the particulate matter is transferred from the reactor to a regenerator (24, 28, 29) for regeneration and then recirculated to the reactor after the regeneration, and the converted hydrocarbon products are recovered from the reactor. Both the reactor (1-3) and the regenerator comprise risers (13, 24) having an axially annular cross section and being equipped with a multi-inlet cyclones (14, 17, 25, 26) for the separation of particulate matter. By means of the invention it is possible to produce pyrolysis oil, the quality of which is higher than that of oil produced with the processes of the prior art. The incorporation of multi-inlet cyclones into the reactor configuration reduces gas velocities, reduces the physical size of the cyclone and shortens the residence time of gases in the cyclone.

(Figure 1)